A PHILOSOPHICAL EVOLUTIONIST.

Der Wert der Menschheit in seiner historisch-philosophischen und seiner heutigen naturwissenschaftlichen Bedeutung. By Dr. F. Strecker. Pp. xiii+392. (Leipzig: W. Engelmann, 1910.) Price 7.40 marks.

THE author expounds a new interpretation of nature—a "Pythagorean-atomistic" evolution principle—which correlates a recognition of necessitarian uniformity with the concept of a high degree of contingency in natural happenings. The first part of the book is devoted to a historical sketch of the development of philosophic thought, in which the author discerns an analogy to the phyletic evolution of organisms. He then passes to a survey of the world of energies, and the discovery of its principle of development. The third section is devoted to the position of living organisms in nature, and here the author recognises that there is truth both in the vitalistic and in the mechanistic interpretations. But the mechanistic interpretations of vital activity that work are not like those which apply to the inorganic; there is a dualism and antagonism separating the two sets of formulæ. In fact, the organism stands by itself "with an independent genesis and tendency." In the fourth part of his book Dr. Strecker investigates the factors in the self-evolution of the animate world, and subjects "Darwinism" to a detailed criticism, his sympathies being Lamarckian. The chief point in the criticism is not unfamiliar, that selection is a secondary and directive, not a primary and originative factor. In the concluding part of this section there is an interesting discussion of "purposiveness," for instance, in development. This is regarded not as a fundamental property which explains things, but as a secondary achievement which has to be explained. It is not primary, but an outcome of progressive evolution. The concluding part of the book is on man's place in nature, and contains a vindication of an "anthropocentric" cosmology.

It may be of interest to give some further indication of the author's indictment of Darwinism. He criticises the concepts of the struggle for existence and natural selection, and shows that they tend to distract the attention from the primary fact and problem of the active organism, asserting itself in relation to the environment, and expressing itself ever in fresh form. In the second place, he seeks to show that some of the postulates are inconsistent with the actual facts of the case, and he raises difficulties, some of which have been very often discussed, regarding over-multiplication, the selection-value of a few additional millimetres on a primitive proboscidean's trunk, and the struggle among members of the same species. He utilises the facts of mutual aid as arguments against Darwinism, and in so doing shows, as it seems to us, a Procrustean conception of what the struggle for existence means.

Dr. Strecker leads his readers in an interesting way from the errors of Darwinism to the truth that is in Lamarck, and we are left at least with the impression that some compromise must be arrived at between the two interpretations. Not the least striking part of the book is the thesis that Darwinism is wrapped up with mechanistic, and Lamarckism with vitalistic views, and from this the author goes on to show that a recognition of the partial truth on either hand is to be found in his own particular theory of the "anthropocentric position" of man in the universe.

J. A. T.

RECENT PROGRESS OF SCIENCE.

Fortschritte der naturwissenschaftlichen Forschung. Edited by Prof. E. Abderhalden. Vol. i., pp. viii+306. Vol. ii., pp. iv+364. (Berlin and Vienna: Urban und Schwarzenberg, 1910–11.) Price, vol i., 10 marks; vol. ii., 12 marks.

THE plan of this new publication is to furnish summaries of recent results in selected departments of knowledge in which some degree of settlement and certainty has already been reached. This policy will avoid any risk of wasting time on raw speculations, and, under the able guidance of a man of Dr. Abderhalden's experience and prodigious industry, the series promises to be useful and judiciously chosen. In these first two volumes the subjects dealt with are colour photography (Miethe), fire-damp-resisting explosives (Brunswig), slow combustion and oxidation ferments (Bach), methods and recent results of gravitation measurements (Niethammer), development of picture telegraphy (Korn), recent methods of solar investigation (Guthnick), fermentation in living and "killed" plants (Palladin), origin of petroleum (Engler). Vol. ii.:—Inheritance of acquired characters (Semon), fossil lung-breathing aquatic animals (Stromer), volcanic research (Sapper), ions and electrons (Mie), utilisation of atmospheric nitrogen (Frenzel), cretinic degeneration, goitre, and deaf-mutism (Bircher), and muscular atrophy (Bing).

All these essays, written by men who have done some original work on the subjects dealt with (and sometimes a great deal of work), are well written, and occasionally only disappointing to the uninitiated on account of their caution. Thus Miethe regards a further sensational development of colour photography as very unlikely; Korn throws cold water on the problem of vision at a distance; and Sapper, after an exhaustive parade of recent volcanic theories (including Strutt's radio-activity speculations), calls for more facts. Some of the contributors are more positive. Brunswig confidently expects the discovery of a satisfactory explosive for coal-mines by judicious admixture of non-explosive material; Palladin considers the loss of coordination in the production of ferments after killing (by cold or narcotics) as definitely established; Semon commits himself to a modified Lamarckism on a basis of "mnemes" and "engrams"; and Bircher regards the influence of soil and water on cretinism as proven. Engler favours the view which ascribes the origin of petroleum to fossil animal fats.

The remaining articles are more or less neutral, but no less admirable, summaries of recent work. Mie's "Ions and Electrons" emphasises Maxwell's views of the æther rather more than we are accustomed to

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find in Germany nowadays. It shows that the school which would regard the æther as a mere "physical space" has not yet captured all the Continental seats of learning. The further volumes are to appear at the rate of two per annum, and the list of forthcoming essays is distinctly attractive.

DISJUNCTIVE GEOGRAPHY.

A Systematic Geography of America. By G. W. Webb. Pp. viii+108. (London: Methuen and Co., Ltd., n.d.) Price 1*s.*

"THIS book—the fourth of a series of five—deals with the geography of the New World. As in the previous volumes, the treatment of the subject is on logical and modern lines, and the book will be found to contain the kind of information that candidates preparing for fairly advanced examinations in geography are now expected to acquire." Instances of the absence of modernity in the treatment are striking; for example, the rain of California is attributed to the north-east trades, without mention of its characteristic winter maximum, and in disregard of Buchan's maps on wind directions.

The space devoted to Argentina is the same as that given to Peru, and but one-quarter of that given to Canada. In view of the information which is accessible in the "Statesman's Year Book," the "Atlas of the World's Commerce," and the publications of the United States Government, the treatment of minerals in Mexico, the reference to cotton ports and to the trade of the United States ports on the Pacific, as well as the arbitrary division between the "wheat" and "maize" belts by lat. 42° N. are curious, and, on the whole, misleading. Mexico is first as to the production of silver, and produces copper, but not iron and tin to any extent.

Much is made of "Sea-island" cotton, but the total production of that variety is, roughly, 1/200th of the United States cotton crop, and stress is laid upon Mobile, Wilmington, Charleston, and Pensacola as cotton ports when really about three-quarters of the cotton exports go from Galveston, New Orleans, Savannah, and New York. On the Pacific coast Portland is suggested as of more importance than the ports on Puget Sound, when its trade is roughly only about one-third of that of the more northern ports. There seems hardly any excuse for the limitation of the "wheat" belt by latitude, especially as Wisconsin is named in large type, and the fact that in relation to area of land in the respective territories Pennsylvania is more important than Michigan is ignored.

On the whole the book contains many isolated facts, but surely modern ideas in geography demand a statement of facts in relation to each other; *e.g.* climate is discussed in an introductory chapter, and on the "wheat" belt the author writes:—"The winters in this region are very cold; the summers are warm, but not warm enough to ripen maize"; yet S. Dakota, Minnesota, Wisconsin, and Michigan produce annually over 200 million bushels of maize on the average. It appears that the defects are due to indiscriminate use of statements made in other text-books.

B. C. W.

OUR BOOK SHELF.

Laboratory Notes on Organic Chemistry for Medical Students. By Dr. Paul Haas. Pp. viii+128. (London: Macmillan and Co., Ltd., 1910.) Price 2*s.* 6*d.* net.

IT is generally recognised that a knowledge of organic chemistry is becoming more and more essential for the proper study of physiology and the medical sciences, but, on the other hand, the complaint is frequently heard that the curriculum of the medical student is becoming seriously overcrowded, and that science work is encroaching too far on the more professional studies.

The new syllabus of the second medical examination, part i., of the London University is the result of a compromise between these two points of view, and an attempt is being made to teach organic chemistry with special reference to its applications in physiology, pharmacology, and pathology, and while giving a sound elementary knowledge of the principles of the subject to illustrate them as far as possible by means of substances of importance in the aminol economy.

The book under review covers the practical syllabus of the above examination, and we may say at once that it is a good book, though it suffers from the defects inherent in any work written for so special a purpose. The first half of the book contains a lucid and thoughtful account of the general methods of organic chemistry, illustrative methods of preparation, and the various quantitative exercises mentioned in the syllabus. The second half is devoted to qualitative tests for a number of substances of physiological importance; and the practical recipes for preparing these substances, many of which are expensive and difficult to obtain in the market, will be found exceedingly useful, particularly by those teachers who may not be specially familiar with biochemical methods. A sufficient account of the theoretical principle underlying the various exercises and tests is given, and, where possible, the bearing of the subject on the future work of the student is emphasised, so that he may realise that chemistry is not to be regarded merely as an examination subject, but rather as a valuable adjunct to his knowledge for the fuller appreciation of his clinical and other studies. The book will, we think, be useful both to students and teachers.

Die Kalte: ihr Wesen, ihre Erzeugung und Verwertung. By Dr. H. Alt. Pp. v+124. (Leipzig: B. G. Teubner, 1910.) Price 1.25 marks.

THIS little book is based upon a series of six lectures delivered in München during 1907 by the author. Dr. Alt has endeavoured to popularise the subjects of the production of cold and the physics of low temperatures so as to render them both interesting and useful to the beginner. No special knowledge of this particular branch of physics is assumed; a general intelligence and interest in natural phenomena is all that is expected of the reader. With this in view the author devotes the first two chapters to matter which finds a place in almost any elementary treatise on heat. In the first chapter the properties and laws of gases are discussed, and in the second, those of vapours, both being obviously necessary preliminaries to the appreciation of the remaining sections of the book.

The production of cold by means of the reversed heat-engine, together with descriptions of the various types of refrigerator, form the subject of the next chapter; the remaining three are concerned with the question of the liquefaction of gases. The different processes by which liquefaction has been secured are described in chronological order, starting with the earlier regenerative process and leading up to the

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